Tris Base
Safety Data Sheet

Version 1.1
Revision date10/29/2011/LM-IA

SECTION 1. Product and company identification

Chemical type	:	Substance
Substance name	:	Tris Base
CAS No.	:	77-86-1
Product code	:	RC-105
Formula	:	C4H11NO3
Synonyms	:	1,1,1-tris(hydroxymethyl)methylamine / 1,3-propanediol, 2-amino-2-(hydroxymethyl)- / 2-amino-2-(hydroxymethyl)-1,3-propanediol / 2-amino-2-(hydroxymethyl)propane-1,3-diol / 2-amino-2-hydroxymethyl-1,3-propanediol / 2-amino-2-methylol-1,3-propanediol / addex-tham / aminotrimethylolmethane / aminotris(hydroxymethyl)methane / methanamine, 1,1,1-tris(hydroxymethyl)- / methylamine, 1,1,1-tris(hydroxymethyl)- / pehanorm / TALATROL / THAM / THAM set / THAM-E / trimethylolaminomethane / TRIS / tris (buffering agent) / tris amine buffer / TRIS AMINO / TRIS buffer / TRIS(base) / tris(hydroxymethyl)methanamine / tris(hydroxymethyl)methylamine / trisamin / trisamine / trisaminol / tris-hydroxymethylaminomethan / tris-hydroxymethylaminomethane / TRISPUFFER / TRIS-STERIL / TRIZMA / trometamol / trometamole / tromethamine / TROMETHANE / tromethanmin / tutofusin TRIS
Company identification	:	G-Biosciences/ Geno Technology, Inc. 9800 Page Avenue St. Louis, MO 63132-1429, USA Tel.1-800-628-7730 http://www.GBiosciences.com
Emergency number	:	Chemtrec 1-800-424-9300 (USA/Canada), +1-703-527-3887

SECTION: 2. Hazards identification

2.1. Emergency Overview

Physical State	:	Solid
Appearance	:	Crystalline solid. Crystalline powder
Colour	:	White to light yellow
Odour	:	Amine-like odour. Mild odour

Tris Base (\f)77-86-1

2.2. OSHA Regulatory Status

No additional information available

2.3. Potential health effects

Symptoms/injuries after inhalation	:	Irritation of the respiratory tract. Irritation of the nasal mucous membranes. Coughing.
Symptoms/injuries after skin contact	:	Red skin. Tingling/irritation of the skin.
Symptoms/injuries after eye contact	:	Irritation of the eye tissue.
Symptoms/injuries after ingestion	:	Nausea. Vomiting. Irritation of the gastric/intestinal mucosa. Diarrhoea. AFTER ABSORPTION OF HIGH QUANTITIES: Change in the haemogramme/blood composition. Feeling of weakness. Disturbances of consciousness. Enlargement/affection of the liver. Affection of the renal tissue.

2.4. Potential environmental effects

No additional information available

SECTION: 3. Composition/information on ingredients

Name	CAS No.	%
Tris Base	77-86-1	100

4.1. First aid procedures

First-aid measures general	:	Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with laboured breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital.
First-aid measures after inhalation	:	Remove the victim into fresh air.
First-aid measures after skin contact	:	Wash immediately with lots of water (15 minutes)/shower. Soap may be used.
First-aid measures after eye contact	:	Rinse immediately with plenty of water for 15 minutes. Take victim to an ophthalmologist. Do not apply neutralizing agents.

First-aid measures after ingestion : Rinse mouth with water. Victim is fully conscious: immediately induce vomiting. Ingestion of large quantities: immediately to hospital. Call Poison Information Centre (www.big.be/antigif.htm).

4.2. Note to physicians

No additional information available

SECTION: 5. Firefighting measures

5.1. Flammable properties

Fire hazard : DIRECT FIRE HAZARD. No data available on direct fire hazard. INDIRECT FIRE HAZARD. No data available on indirect fire hazard.

Explosion hazard : DIRECT EXPLOSION HAZARD. No data available on direct explosion hazard. INDIRECT EXPLOSION HAZARD. No data available on indirect explosion hazard.

Reactivity : On burning: release of toxic and corrosive gases/vapours (nitrous vapours, carbon monoxide - carbon dioxide).

5.1. Extinguishing media

Suitable extinguishing media : Water spray. Alcohol-resistant foam. Polymer foam. ABC powder. Carbon dioxide.

Unsuitable extinguishing media : Container may slop over if solid jet (water/foam) is applied.

5.3. Protection for firefighters

Firefighting instructions : Dilute toxic gases with water spray.

Protection during firefighting : Heat/fire exposure: compressed air/oxygen apparatus. Heat/fire exposure: gas-tight suit.

SECTION: 6. Accidental release measures

6.1. Personal precautions

6.1.1. For non-emergency personnel

Protective equipment : Gloves. Face-shield. Protective clothing. Dust cloud production: compressed air/oxygen apparatus. Dust cloud production: dust-tight suit.

Emergency procedures : Mark the danger area. Prevent dust cloud formation, e.g. by wetting. No naked flames. Wash contaminated clothes.

6.1.2. For emergency responders

No additional information available

6.2. Environmental precautions

No additional information available

6.3. Methods for containment

For containment : Contain released substance, pump into suitable containers. Consult "Material-handling" to select material of containers. Plug the leak, cut off the supply. Knock down/dilute dust cloud with water spray.

6.4. Methods for clean up

Methods for cleaning up : Stop dust cloud by covering with sand/earth. Scoop solid spill into closing containers. See "Material-handling" for suitable container materials. Clean contaminated surfaces with an excess of water. Wash clothing and equipment after handling.

6.5. Other information

No additional information available

6.6. Spill or leak statements by type of chemical

No additional information available

SECTION: 7. Handling and storage

7.1. Handling

Precautions for safe handling : Comply with the legal requirements. Clean contaminated clothing. Thoroughly clean/dry the installation before use. Avoid raising dust. Keep away from naked flames/heat. Observe normal hygiene standards. Keep container tightly closed. Carry operations in the open/under local exhaust/ventilation or with respiratory protection.

7.2. Storage

Storage temperature : 20 °C

Heat-ignition : KEEP SUBSTANCE AWAY FROM: heat sources.

Prohibitions on mixed storage : KEEP SUBSTANCE AWAY FROM: oxidizing agents. (strong) bases.

Storage area : Store in a dry area. Keep container in a well-ventilated place. May be stored under argon. Store at room temperature. Meet the legal requirements.

Special rules on packaging : SPECIAL REQUIREMENTS: closing. watertight. dry. clean. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.

Packaging materials : SUITABLE MATERIAL: steel. iron. cardboard. synthetic material. MATERIAL TO AVOID: aluminium. copper.

SECTION: 8. Exposure controls/personal protection

8.1. Exposure guidelines

No additional information available

8.2. Engineering controls

No additional information available

8.3. Personal protective equipment (PPE)

Materials for protective clothing	:	GIVE GOOD RESISTANCE: rubber.
Hand protection	:	Gloves.
Eye protection	:	Face shield. In case of dust production: protective goggles.
Skin and body protection	:	Protective clothing. In case of dust production: head/neck protection. In case of dust production: dustproof clothing.
Respiratory protection	:	Dust formation: dust mask.

SECTION: 9. Physical and chemical properties

Physical state	:	Solid
Appearance	:	Crystalline solid. Crystalline powder.
Molecular mass	:	121.14 g/mol
Colour	:	White to light yellow.
Odour	:	Amine-like odour. Mild odour.
Odour threshold	:	No data available
pH	:	10 - 11
pH solution	:	5 %
Melting point	:	170 °C
Solidification point	:	No data available
Boiling point	:	219 °C (13)
Flash point	:	No data available
Relative evaporation rate (butylacetate=1)	:	No data available
Flammability (solid, gas)	:	No data available
Explosive limits	:	No data available
Vapour pressure	:	No data available
Relative vapour density at 20 °C	:	4.2
Relative density	:	No data available
Solubility	:	Soluble in water. Soluble in methanol. Soluble in ethyleneglycol. Water: > 55 g/100ml Ethanol: 2.2 g/100ml Acetone: 2 g/100ml
Log Pow	:	-1.56
Self ignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity	:	No data available
Explosive properties	:	No data available
Oxidising properties	:	No data available
VOC content	:	0 %
Other properties	:	Hygroscopic. Substance has basic reaction.

SECTION: 10. Stability and reactivity

10.1. Chemical stability

On burning: release of toxic and corrosive gases/vapours (nitrous vapours, carbon monoxide - carbon dioxide).

Unstable on exposure to moisture.

10.2. Conditions to avoid

No additional information available

10.3. Incompatible materials

No additional information available

10.4. Hazardous decomposition products

No additional information available

10.5. Possibility of hazardous reactions

No additional information available

SECTION: 11. Toxicological information

Information on toxicological effects

Acute toxicity : Not classified

Tris Base (77-86-1)	
LD50 oral rat	5900 mg/kg

Skin corrosion/irritation : Causes skin irritation.
pH: 10 - 11

Serious eye damage/irritation : Causes serious eye irritation.
pH: 10 - 11

Respiratory or skin sensitisation : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Reproductive toxicity : Not classified

Specific target organ toxicity (single exposure) : May cause respiratory irritation.

Specific target organ toxicity (repeated exposure) : Not classified

Aspiration hazard : Not classified

SECTION: 12. Ecological information

12.1 Ecotoxicity

No additional information available

12.2. 12.2. Persistence and degradability

Tris Base (\f)77-86-1	
Persistence and degradability	Biodegradability in water: no data available.

12.3. Bioaccumulation/Accumulation

Tris Base (\f)77-86-1	
Log Pow	-1.56
Bioaccumulative potential	Bioaccumulation: not applicable.

12.4. Mobility in environmental media

No additional information available

12.6. Other adverse effects

No additional information available

SECTION: 13. Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations : Specific preliminary treatment. Remove to an authorized incinerator equipped with an afterburner and a flue gas scrubber.

Additional information : Hazardous waste (91/689/EEC).

SECTION: 14. Transport information

14.1. Basic shipping description

No additional information available

14.2 Additional information

Other information : No supplementary information available.

State during transport (ADR-RID) : No data available.

Overland transport

No additional information available

Transport by sea

No additional information available

Air transport

No additional information available

SECTION: 15. Regulatory information

15.1. US Federal regulations

No additional information available

15.2. International regulations

CANADA

No additional information available

EU-Regulations

No additional information available

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Eye Irrit. 2 H319
STOT SE 3 H335
Skin Irrit. 2 H315

Full text of H-phrases: see section 16.

Classification according to Directive 67/548/EEC or 1999/45/EC

Xi; R36/37/38

Full text of R-phrases: see section 16.

15.2.2. National regulations

No additional information available

15.3. US State regulations

No additional information available

SECTION: 16. Other information

HMIS III Rating

No additional information available

SDS US (ANSI) GBiosciences